LEARNING FROM HIGHER EDUCATION:

How Ivy Tech is using predictive analytics and a data democracy to reverse decades of entrenched practices
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Chief Data Officer
Ivy Tech Community College

- 22 years in Information Technology
- Led data, business intelligence, analytics and research teams for numerous companies including The Walt Disney Company, Travelers Insurance, Demand Media and City Colleges of Chicago

Lige Hensley
Chief Technology Officer
Ivy Tech Community College

- 24 years in Information Technology
- A continuous innovator with experience in numerous industries including agriculture, military, entertainment, logistics, health care, government, education, manufacturing, telematics and more
Ivy Tech Community College

- Ivy Tech is Indiana’s statewide community college and the largest singly-accredited two-year college in the country
- 27 campuses and sites (over 130 buildings) across the state
- Certificates and Associate Degrees as well as Corporate College, Foundation, etc.
- ~9,000 administrators, staff and faculty educating nearly 165,000 students annually
Ivy Tech Community College

- Over 60,000 online and in-person course sections each year
- 1,200 software applications in use
- Over 20,000 BYOD devices each day (~60,000 at peak) and 20M e-mails each day
- User base of 727,204 as of last week.
- Generating over 100,000,000 rows of data each day across the Enterprise
Cutting-edge, cloud-based data warehouse and analytics platform

Total daily load: 15 source systems
- 100M+ rows per day
- Capture ERP data at the transaction level
- Self-healing architecture
- 40 interactive data collections across domains:
  - students, finance, financial aid, A/R, HR, fundraising, IT and more
  - All reports are drag-and-drop interactive
  - Embedded data dictionaries with tooltip visibility
- Total daily load duration: 1 hour
What Have You Done With NewT So Far?

- Trained 4,000 users in under 1 year
- Increased speed-to-data from hours to seconds
- Project Early Success
- Degree Audit and “What If” Collection
- Accounts Receivable
Gartner Award

2017 Data & Analytics Excellence Award: Ivy Tech

- Best Self-Service Analytics
En·trenched
/in'tren(t)SHt, en'tren(t)SHt/

adjective

(of an attitude, habit, or belief) firmly established and difficult or unlikely to change; ingrained.

“an entrenched resistance to change”
Common Entrenched Practices

#1 Source data after the question is asked
#2 Letting tradition determine Build vs. Buy
#3 Cloud is just using someone else’s server
#4 Struggling with the data knowledge gap
#5 Do what the users ask of you
#6 Protecting your data is more important than anything else
Blue Pill or Red Pill?
#1 Sourcing data after the question is asked

• **Issue:**
  - Forces data teams to be reactive
  - Time to get new data

• **Design Goal:**
  - Have all the answers ready before the users even think of the question.

• **Opportunity:**
  - Start with Contracts
Letting tradition determine build vs. buy

- **Issue:**
  - Using traditional methods, we didn’t have the bandwidth to do it ourselves or the money to pay someone to do it for us.

- **Design Goal:**
  - Do it anyway

- **Opportunity:**
  - Cloud
Cloud is just using someone else’s server

• Issue:
  • Many people don’t understand cloud

• Design Goal:
  • Store and process 100M rows per day… quickly!

• Opportunity:
  • Cloud is a whole different animal
  • Infrastructure, Platform, Software
#4 Struggling with the data knowledge gap

**Issue:**
- Business users and IT don’t speak the same language around data

**Design Goal:**
- Ivy Tech CDO Role

**Opportunity:**
- Curated data collections
The use of curated data collections allowed Ivy Tech to finally move away from “Predefined Reporting” and empower their users with Free-Form Visual Exploration.
You just need to do what your users ask

• **Issue:**
  • By the time your users tell you the system is bad, it’s too late.
  • Opinion-based decision-making

• **Design Goal:**
  • Design for the Future

• **Opportunity:**
  • Do what your company needs, not just what they ask for
Ivy Tech’s Original Design Goals:

- Centralized control, decentralized analytics and production
- Load and keep all data from everywhere available at any time and as of any time.
- Everybody gets the data they need and know what it means.
- Can be real-time, if desired.
- Enable historical transactions in systems that don’t natively have that ability
- No report takes longer than 10 seconds to run

Oh... and:

- Must scale to 100’s of millions of rows of data per day, be supported by just a few people who had other things to do, and be cost effective enough that a community college could afford to do it.
Making it Possible

- 2.5 Data Engineers
- 7 Institutional Researchers
- Monthly software and cloud expense approximately $4,000

That’s 95% LESS that the next closest solution we could find
#6 Protecting your data is more important than anything else

- **Issue:**
  - Standard practices lean towards restriction, protection, and bottlenecks

- **Design Goal:**
  - Data Democracy

- **Opportunity:**
  - Eliminate centralized data cleansing
Making it Possible

- No dedicated report writers
- Data validation, not data cleansing
- Using data, our organization has saved costs, increased revenues and proactively helped thousands more students succeed

Every question is a potential silver bullet
...and we have thousands of users asking and answering questions every day
Common Entrenched Practices

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#5 Do just what the users ask of you
#6 Protecting your data is more important than anything else
The New Normal

#1 Source data BEFORE the question is asked
#2 Letting POSSIBILITY determine Build vs. Buy
#3 Cloud is A NEW SET OF OPPORTUNITIES
#4 OVERCOME the data knowledge gap
#5 Do MORE THAN what your users ask of you
#6 LEVERAGING your data is more important than anything else
Connect with Us!

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CHANGING LIVES MAKING INDIANA GREAT